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ABSTRACT

The 1955 check-list consisted of 92 items giving students' perceptions of the teaching-learning process, and was suggested for use in teacher self-evaluation. It was revised in the spring of 1969 to incorporate results of recent research and to apply specifically to classes in high school English. Similar devices, together with articles and books on research in classroom learning were reviewed for item content and construct validity. Wording was simplfied: each specification was limited, where practicable, to a single concept; and classifications were clarified, resulting in an increase from 28 to 34 specifications. The type of response was changed from frequency-of-occurrence to degree-of-occurrence to degree-of-agreement and the list tested in 16 classes Alpha coefficients were obtained for section scores as well as for total scores, and correlational data suggested that both scores were useful. The construct validity was investigated through factor analysis and revealed the check-list to be a multi-dimensional instrument. It was concluded that (1) reliability of response was higher on observable than on inferred behavior, (2) items not understood should be given a neutral score, and (3) factor analytic results did not contribute to interpreting responses. The revised specifications and list of categorized items are attached. (MBM)

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A REVISION OF THE CHECK-LIST OF HIGH SCHOOL CLASS ACTIVITIES

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Brief Description of the Original Check-List

The development and characteristics of the original check-list were reported by the senior author in 1955 (Scott, 1955). Consisting of 92 items the check-list obtained pupils' perceptions of six dimensions of the teaching-learning process--instructional objectives, teacher-pupil and pupil-pupil personal relations in the classroom, use of instructional materials and resources, pupil motivation, continuity of learning, and measurement and evaluation. Validity was established logically in that a set of 28 specifications approved by a selected group of educational psychologists, educational sociologists and specialists in education was used as the basis for devising items. Further, trials in high school classes resulted in selecting items which students were knowledgeable enough to answer and were willing to answer frankly. Score reliability data (test-retest and a one-week interval) reported in 1955 showed checklist scores to be sufficiently reliable for comparing means (median reliability coefficient of .85 and median standard error of 5.25). Suggested uses for the check-list focused on self-evaluation by the teacher via obtaining such information as the following: student perceptions of present class practices and conditions, relationships between student perceptions and student personality characteristics, changes in student perceptions of class practices and conditions, and relationships between changes in student perceptions and changes in student achievement and attitudes.

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Spring, 1969, Revision of the Specifications and Check-List Items

In the spring of 1969 the authors and a colleague specializing in group dynamics revised the check-list with two purposes in mind: to incorporate items reflecting research on student perceptions of teaching-learning which has been reported since 1955; and to render the check-list specifically applicable for use in classes in high school English, with the idea that if modification for use in English classes proved satisfactory, it would be an easy matter to modify it for use in other subjects. To aid in revising the specifications and the items the senior author reviewed a number of similar devices as well as articles and books reporting research on classroom learning. The devices were reviewed from two standpoints: item content was carefully examined and research on construct validity, where available, was reviewed. Among devices examined in this manner were: The Minnesota Student Attitude Inventory (Teacher Influence, 1965), Pupil Observation Survey (Veldman, 1963), Purdue Rating Scale for Instruction (Miklich, 1969), Stanford Teacher Competence Appraisal Guide (Allen and Fortune, 1966), The Teacher Characteristics List (Ryans, 1960) and the Flanders-Amidon Interaction Recording sheet (Amidon and Flanders, 1963). Illustrative of books and articles reviewed were those by Jenkins (1960), Perkins (1964), Soar (1964), Wehling and Charters (1969) and White (1969). In reviewing these books and articles the senior author identified research-supported generalizations pertaining to conditions for effective classroom learning. Comparison of the original check-list specifications with factors identified in construct validity studies of the devices and with the research-supported generalizations identified in the books and articles showed that check-list specifications were consistent with these

factors and research-supported generalizations. No information was gleaned to suggest the desirability of changing the six a priori dimensions of the original check-list. However, revising the wording of some specifications was desirable to simplify the statement, to limit each specification, where practicable, to a single behavior or concept, and to clarify the classification of some of the specifications into the appropriate dimension. This revision increased the number of specifications from 28 to 34. Table 1 identifies each of the six a priori dimensions and lists in numerical order the specifications classified in each dimension.

In revising check-list items several steps were taken. The relevance of each item to instruction in English was examined and, where feasible, items were rewritten to apply specifically to such instruction. In a few instances, an item identifying more than one behavior or concept was rewritten to identify only one.

In some instances items were rewritten to simplify the wording. A number of items not specifically relevant to instruction in English were deleted. The last step taken was to recheck the classification of each item in terms of the specification it was intended to exemplify. Each item was independently classified by each author and the classifications compared. In some instances differences in classification by specification were found but in no instance was there disagreement as to the dimension to which the item was relevant. These differences in classification by specification were reviewed and a classification agreed upon. Table 2 lists the 74 items included in the revision, classified under the dimension to which the item is applicable and identifies the number of the specification the item exemplifies.

Revision of the Structured Responses

The 1955 version of the check-list required the respondent to read each item and select one of the following responses:

1. This condition exists none (0%) of the time.
2. This condition exists about 25% of the time.
3. This condition exists about 50% of the time.
4. This condition exists about 75% of the time.
5. This condition exists all (100%) of the time.

Scrutiny of item content in the 1969 revision suggested that for some items a frequency-of-occurrence type of response was inappropriate. Rather than change the meanings of these items, the authors, after careful consideration of possibilities, decided to use the following key:

1. I STRONGLY DISAGREE that the statement is an accurate description of my class.
2. I DISAGREE that the statement is an accurate description of my class.
3. I AGREE that the statement is an accurate description of my class.
4. I STRONGLY AGREE that the statement is an accurate description of my class.
5. I DON'T UNDERSTAND THIS STATEMENT.

In the 1969 revision, as in the 1955 version, six dimension or section scores and a total score were obtained by summing the numerical values of the options selected. For most items "Strongly Agree" was scored as 4, "Agree" as 3, etc. To inhibit possible operation of response sets the authors worded some items negatively and placed them randomly throughout the check-list. For these negatively worded items "Strongly Agree" was

scored as 1, "Agree" as 2, etc. A response of 5 ("I do not understand the item") was construed as an unfavorable response and scored as 0.

Internal Consistency Reliabilities of Section and Total Scores, 1969 Revision

In the 1955 version no attempt was made to obtain reliability estimates for section scores. For the 1969 revision, alpha coefficients were obtained for section scores as well as for total scores, separately by classes. Table 3 contains a summary of these data. In most instances section score alpha coefficients were above .50 and in some instances, above .85. For the check-list total scores, there were only three coefficients less than .85 (.80, .78, .78).

In most instances the standard error of measurement of a section score was 3 raw score units or less and of a total score, from 6.0 to 7.5 raw score units. Assuming a class size of 25, the standard error of measurement of a section mean was, therefor, about 0.6 and of a total score mean about 1.5. At the .05 significance level, a difference in section means of 1.7 for two classes (two classes, same check-list section) was statistically significance and a difference in total score means of 4.0 was so. Although not reported in this paper, section means and total score means were obtained for each of the 16 classes. Across classes, differences in section means (same section) were usually larger than 1.7 and differences in total score means were usually larger than 4.0. Mean section scores and mean total scores were sufficiently reliable to differentiate among classes.

Inter-Section Correlation Coefficients

For each of the 16 classes intercorrelations were obtained for the different pairs of check-list sections--15 correlation coefficients per

class. Table 4 summarizes these data. The median correlations ranged from low (.28-.30) to moderate (.50-.65), suggesting that section scores are not too nearly redundant to be useful. Of the 240 correlation coefficients computed only one was above .90 and only seven were above .80. Although not reported in this paper, correlation coefficients were also computed using the section means obtained for the 16 classes. These r's were usually .20-.30 higher than the within-classes r's reported in this section, i.e., average perceptions of the different dimensions across classes were more closely related than were individual perceptions of the different dimensions within classes. These correlational data do suggest that section scores as well as total scores are useful, meaningful measures.

An Exploratory Factor Analysis of the Item Responses

For the 1955 version of the check-list no attempt made to investigate the construct validity of the check-list through the use of factor analysis. A major objective of the try-out of the 1969 revision was to conduct a factor analysis for this purpose. In selecting a factor analysis model, the senior author considered the sizes of the alpha coefficients obtained for the check-list total scores in the 16 classes used in the try-out. The sizes of these coefficients suggest that 78 per cent or more of the item response variances are probably accounted for by common factors (Cronbach, 1967,p.164). Using a factor analysis model based on common factors only, therefor, seemed reasonable. This model, of course, leads to a principal components analysis with unities in the diagonal of the correlation matrix. A second question to be resolved in planning the factor analysis was the question of the appropriate kind of inter-item r. Within-class Pearson-r's were selected. The rationale back of this decision was that with an instrument of this type, in which the context in which the responses are made exerts strong influence on the responses, the variance properly to be accounted for should be that observable within classes rather than the total variance, including between classes variance. A third question to be answered was the question of the appropriate criterion to

use in deciding how many factors to rotate. Two common criteria in use are the "eigenvalue criterion" and the "scree criterion." Of these two, use of the eigenvalue criterion identified common factors accounting for a larger proportion of the item response variances than the ones identified by the scree criterion. The eigenvalue criterion was chosen, therefore, so that the intent was to rotate those factors whose eigenvalues equalled or exceeded 1.0000. The principal components analysis yielded 26 factors with eigenvalues of 1.0000 or more, accounting for 60.7% of the item response variances. A fourth question to be considered was that of selection of an appropriate rotation technique. The first choice was use of the maxplane criterion (Cattell and Muerle, 1960) for two reasons: hypothesizing correlated factors seemed more reasonable than hypothesizing orthogonal ones, and of various techniques for oblique rotation, the technique possessed strong credentials. However, two very practical considerations forced abandonment of use of this technique: the available computer program rotates a maximum of 20 factors, and the time required for solution with as many as 20 factors is inordinately long. As an example, an attempt was made to rotate 20 factors using the maxplane criterion and after 50 minutes of IBM 7094 time, the solution was nowhere in sight. With reluctance, therefore, a decision was made to rotate the 26 factors orthogonally to varimax criterion. Table 5 contains the results of the rotation, listing, classified by factor, every item with a factor loading $\geq$ .30. Because of the fact that there were 74 variables (check-list items) and 26 factors, the usual table of factor loadings would be too unwieldy; hence the format of this table. The most self-evident fact revealed by the data in the table is that the check-list is clearly a multi-dimensional instrument. Factor 1 accounted for 13.4% of the variance, Factor 2 for 4.3%, factor 3 for 2.8%, factor 4 for 2.5%, factor 5 for 2.3%, factor 6 for 2.2%, factor 7 for 2% and factors 8-26, inclusive, for 1.0 to 1.9% each. The communalities of the check-list items are summarized as follows: .50-.54, 7 items; .55-59, 24 items; .60-.64, 24 items; .65-.69; 17 items; and .70-.74, 2 items. The sizes of these communalities suggest that item reliabilities were adequate.

With respect to interpreting the factors, the most reasonable approach appeared to be to use the a priori dimensions. Table 6 lists the check-list items cross-classified by factor and by dimension. All but three of the 74 items are included in the table, the exceptions being item numbers 23, 31 and 74. Each of these had factor loadings in the .20's on at least three factors, item 23 loading on Factors 1, 6, 23, 24, 26;item 31, on factors 12, 22, and 24, and item 74, on factors 2, 9, 11, 15, 21, and 22. Underlined items in Table 6 are those loading .30 or more on two or more factors, usually two.

For eight of the 26 factors, every item defining the factor fell in one dimension; however, of these eight factors, only three were defined by more than one item. Ten factors were defined by items falling in two dimensions; six factors, by items falling in three; one, by items falling in four; and one, by items falling in five.

Discussion and Concluding Comments

Both on the basis of the rationale underlying their use and of the empirically obtained reliability data, check-list a priori dimension scores and total scores are usable for purposes such as those suggested in the first section of this paper. However, there is room for improving item reliabilities. Although not reported earlier in this paper, work on improving items is already underway. It seems reasonable that responses to statements describing observable behavior should be more reliable than responses to statements describing inferred behavior or some attribute not directly observable. A check was made, therefore,of the check-list statements to identify those describing observable behavior. The students in a senior level undergraduate course in tests and measurements assisted with this check by independently classifying each check-list statement as describing observable behavior or as not describing observable behavior. These independent classifications were then checked for consistency with satisfactory results, there being 90 per cent agreement or better for every statement. Thirty-two were identified as describ-

ing observable behavior. 42, as not. Comparisons of the communalities and of the section score-item response r's for these two categories of items corroborated the hypothesis concerning the reliabilities of responses.

As reported above, respondents were given opportunities to indicate that they did not understand a statement, so indicating by giving 5 as their response. For ten items 5% or more responded with 5; the proportion of 5's for two of the statements being greater than .20 and the proportion for three more being from .11 to .13. In scoring responses, as reported in an earlier section of this paper, 5's were scored as 0's (extremely unfavorable responses). Further reflection suggested that scoring such responses as 2.5 (neutral with respect to favorableness) is more appropriate. A check on this hypothesis was made through executing a principal components factor analysis using this method of scoring and comparing the communalities of these items with those obtained for them when 5's were scored as 0's. In both analyses six factors were rotated orthogonally to varimax criterion. Scoring the 5's as 2.5's increased the communalities of the 10 items, the communalities of three being increased by .10 or more and of an additional four by .05 or more. There were similar increases in the communalities of most of the other items.

An empirical check was also made comparing the factor analytic results obtained with the matrix of "total" inter-item r's with those obtained with the matrix of "within classes" inter-item r's. Both analyses were principal components analyses. Use of the"total" inter-item r's resulted in 22 factors with eigenvalues equal to or greater th~~an~~ 1.0000, accounting fo 57.6% of the item response variances. Use of the "within classes" inter-item r's yielded 26 factors with adequate eigenvalues, accounting for ~~50.8%~~ 60.7 of the item response variances.

Factor analytic results did not contribute to interpretability of responses. At this writing no check has been made with respect to the stability of factors across different samples. Such a check, is of course, desirable. Further, for such factors as are found to be stable, checks should be made of the relative

usefulness of factor scores and a priori dimension scores.

In conclusion, the recommendations of the authors are (1) to score 5's as 2.5's, (2) to use "total" inter-item r's in factor analyses rather than going to the trouble of obtaining the "within classes" r's for such analyses, and (3) to use the a priori dimension scores in lieu of factor scores.

TABLE 1

1969 Revision of the Specifications for the Check-List of High School Class Activities

A. INSTRUCTIONAL OBJECTIVES

1. The teacher stresses behavioral objectives, helping students learn to use communication skills in knowing, comprehending, translating, interpreting, applying, analyzing, synthesizing and evaluation.

2. The teacher stresses affective as well as cognitive aspects of communication skills.

3. The teacher emphasizes using what is learned in relevant vocational and avocational settings.

4. In addition to stressing communications skills development, the teacher includes behavioral objectives pertaining to such aspects of critical thinking as identifying assumptions, reasoning logically from assumptions or premises, and testing the probable truth of logical conclusions.

B. HUMAN RELATIONSHIPS

5. The teacher communicates and behaves in ways which help students develop
   a. a feeling of belonging and of security as a worthy member of the class;
   b. the will and ability to contribute to the success of class activities; and
   c. self-control with respect to actions detrimental to himself and to others.

6. The teacher behaves and encourages students to behave in ways reflecting respect for other persons regardless of race, religion, or social or economic position.

7. The teacher is empathic, and helps students to be, toward differing economic political, social and religious values and toward differing ways of living based on these values.

8. The teacher provides opportunities for students to participate in classroom decision making and to accept responsibility for the consequences of these decisions.

9. The teacher makes continuing efforts to increase the kinds of decisions made cooperatively and the number of students sharing actively in making them.

10. The teacher is interested in each student as a human being, tries to understand each student and to help each student understand himself, his values, conflicts, and behaviors.

C. USE OF MATERIALS AND RESOURCES

11. The teacher provides a classroom setting that is pleasing, comfortable and attractive to the students.

12. The teacher provides the materials, equipment and supplies essential to the success of class activities.

13. The teacher uses human resources effectively, including pupils and persons available in the community.

14. The teacher provides and encourages students to provide or construct, local materials and resources available in the homes and elsewhere in the community.

15. The teacher helps each student select and use instructional materials appropriate to the student's interest, ability and purpose.

D. MOTIVATION

16. The teacher stimulates students' intellectual curiosities, helping each student develop a desire to learn.

17. Instructional objectives and activities are purposeful to students, i.e., students comprehend and believe in the worthwhileness to them of instructional objectives and activities.

18. The teacher diagnoses specific learning difficulties of students and helps them overcome these difficulties.

19. The teacher provides varied activities and instructional materials relevant to instructional objectives which students accept as worthwhile to them.

20. Students are challenged by attainable tasks which require their best efforts.

E. CONTINUITY OF LEARNING

21. The teacher's enunciation, pronunciation and other speech characteristics contribute to clear communication rather than inhibit it.

22. At the beginning of each learning activity or unit, teacher and students clarify the instructional objectives.

23. To cope with differences among students with respect to their objectives, and levels of ability and achievement, the teacher uses a number of different teaching methods and provides activities which may differ for different students.

24. The teacher describes, illustrates and explains so that students comprehend.

25. The teacher uses such devices as student "feedback" and reteaching to help students comprehend before proceeding to new instruction.

26. Through the use of such devices as overviews, clear transitions from one idea to another, and summaries, the teacher helps students comprehend logical relationships among the concepts and skills they are learning.

27. The organization of subject matter content is related to the purposes that guide the teacher and students in their work and to the levels of ability and maturity of the students.

28. Instructional objectives and activities are closely related to life outside of school; i.e., the community activities and problems as well as those of the students.

29. The teacher helps students fit the concepts and skills they have learned into patterns which make sense to them.

F. MEASUREMENT AND EVALUATION

30. Measurement and evaluation are focused on the learning process; they are tools of diagnosis which contribute to more effective learning.

31. Measurement and evaluation procedures make use of descriptions of carefully defined cognitive and affective behaviors.

32. Students understand the bases of measurement and evaluation, though not necessarily the technical procedures.

33. Students think that the ways of measuring and evaluating their work are appropriate and fair.

34. Measurement and evaluation procedures include evaluation of aims and goals -- those of the class as a group and those of each student.

TABLE 2

List of Categorized Items on the 1969 Revision of the Check-List of High School Class Activities

A. Instructional Objectives
(Stress on Life-Relatedness)

3. What we study does not help me plan a career. (3)
5. In this class I develop skills and knowledge directly related to my plans after I finish high school. (3)
6. In this class we discuss ways to develop hobbies which use what we have learned. (3)
10. We're not expected to question statements in our text. (4)
11. We learn to be more precise in what we say. (1)
12. This teacher plans activities which apply what we have learned to everyday situations such as letter writing or job interviews. (3)
13. We learn to listen carefully to what other people say and to separate statements of fact from statements of the speaker's feeling; for instance, in advertising and political speeches. (2)
14. We learn such skills as identifying assumptions, reasoning logically from assumptions and testing conclusions. (4)
50. What we learn in this class is impractical and of no use outside of class. (3)
68. This teacher would rather have me think through something than memorize it. (1)
74. In this class we learn to express our ideas in ways which won't hurt other persons' feelings or make them angry. (2)

B. Human Relationships

7. Through the way we live and work together in the class we are trying to understand the meaning of democracy. (5)
8. In expressing our ideas we learn to control our emotions. (5)
15. The atmosphere in this class is unfriendly. (5)
16. Class activities are planned so that every student can make a contribution. (5)
17. Our teacher encourages us to express different opinions and differing points of view on the ideas we discuss in class. (7)
18. This class makes me nervous. (5)
19. In this class we accept each student on his own merits, not by who his parents are. (6)
20. In this class we try to understand why other people have ideas that are different from our own. (7)
21. When the teacher and I have opinions which differ, the teacher tries to force me to accept his opinion; for example, to accept his interpretation of a poem I've read. (7)
22. In this class I do and learn things which help me understand myself better -- learning why I do certain things, what I like to do, and what I am capable of doing. (10)
23. My teacher takes an interest in me and wants to know what kind of person I really am. (10)

24. Our teacher handles student misbehavior in a dignified way, showing consideration for the student's feelings and for those of the class. (5)
25. Our class helps our teacher decide what we do in class. (8)
26. Our class helps our teacher decide how we do what we do in class. (8)
27. This teacher, without help from the class, sets the standards for judging our written work. (8)
28. We help this teacher work out what to do about class behavior problems. (8)
29. Our teacher tries to get more pupils to take an active part in making important decisions in class. (9)
49. The class helps the teacher select the sequence in which we take up ideas, topics, problems, or lessons. (8)

C. Use of Instructional Materials and Resources

31. Our classroom is attractive. (11)
32. From my seat it is difficult to see what is on the chalkboard. (11)
33. We don't have the materials, equipment, and the supplies we need; for example, we don't have recordings or films we need. (12)
34. People in our community who have special knowledge or can do special kinds of things are invited to come to our class. (13)
35. Class members with unusual talent have no opportunity to use it in this class. (13)
36. We use reading materials in addition to our textbooks; for instance, we read paperbacks, magazines and newspaper articles. (12)
37. We use many different kinds of material and equipment; for example, we use bulletin boards, charts, film strips, movies, slides, tape recorders, record players and TV. (12)
38. We use materials and equipment we make ourselves. (14)
39. We use materials we bring in from outside of school -- articles, books, recordings, pictures. (14)
40. This teacher helps me select books and materials that are interesting and that will help me learn. (15)
41. If the book or other reading material I am trying to use is too hard or too easy, this teacher helps me find something that suits me better. (15)

D Pupil Motivation

2. In addition to talking and listening, we participate in other kinds of class activities; for exampl we make up our own short skits or plays and act them out in class. (19)

9. When I have difficulty learning, this teacher gives me special help. (18)
30. We have opportunities to write original poems, plays or stories. (19)
42. Outside of school, because it is interesting, I do school work that I don't have to do. (16)
43. What we are trying to learn is too difficult. (20)
44. If I have trouble trying to learn something, our teacher helps me locate the cause of my difficulty. (18)
45. We learn things that the class thinks are worth learning. (17)
46. I try hard in this class because, to me, what I am doing is worthwhile. (19)
47. We have to do homework that is uninteresting and of little or no value. (17)
48. It is possible to do well in this class without trying. (20)

E. Continuity of Learning

1. Instruction is planned in terms of the textbook sequence of content. (27)
4. This teacher makes sure we've learned well before he goes on to new material. (25)
51. What we learn is related to community affairs; for example, we discuss or attend community plays, visit the community library, or consult with a local author. (28)
52. We select a problem of area of interest to work on and then break it down to find out just what we want to learn and how to go about learning it. (27)
53. We examine our own language problems; for example, we record our speech or speech examples from the community and note what we' like to improve or work on. (24)
54. In this class what the teacher says is over my head. (21)
55. We cannot understand this teacher because he does not speak clearly. (29)
56. By the time I've finished an activity or block of work, the things I've learned fit together to form a pattern that makes sense to me. (23)
65. This teacher plans different activities for different students instead of having every student do the same thing. (22)
66. At the beginning of each lesson, I understand clearly what I am supposed to learn. (26)
67. In moving from one idea to another, this teacher makes the connection clear. (24)
69. This teacher explains things clearly. (24)
70. The examples used by the teacher make ideas clear to me. (26)
71. At the end of the class period we summarize what we have learned. (26)
72. This teacher uses many different methods of teaching. (23)
73. In this class the way ideas and activities are organized is very confusing. (29)

F. Measurement and Evaluation

57. Class tests and check-ups are used to find out where we need help. (30)
58. My grade in this class depends primarily on my improvement over my past performance. (32)
59. My grade in this class depends on how well I do compared to the rest of the class. (32)
60. Records of our work in this class include careful descriptions of how we are learning to think and behave. (31)
61. In this class my grade is influenced by what is best for me as a person as well as by how much I have learned. (30)
62. I understand clearly what I have to do in order to earn the grade I want in this class. (32)
63. This teacher's grading is fair. (33)
64. We and our teacher look carefully at what we are learning in class and decide whether it is worth the time and effort we are spending on it. (34)

NOTES

1. The number preceding each item identifies the item number as listed on the Check-List.
2. The number in parentheses following each item identifies the number of the specification to which the item is relevant.

TABLE 3

Cronback Alphas and Standard Errors of Measurement for Section and Total Scores

Spring 1969

Kind of Score	Q_3[a]		Mn		Q_1	
	Alpha	SE_{Meas}	Alpha	SE_{Meas}	Alpha	SE_{Meas}
Instr. Objs. (9-36)[b]	.61	2.54	.56	2.53	.38	2.94
Human Relations (20-80)	.80	4.15	.74	3.08	.72	3.78
Use of Materials and Resources (13-52)	.65	3.07	.53	2.48	.51	2.26
Pupil Motivation (14-56)	.77	3.13	.64	3.03	.58	2.45
Continuity of Learning (10-40)	.73	1.72	.67	2.35	.57	2.39
Measurement and Evaluation (8-32)	.59	2.78	.46	2.61	.38	2.52
Total (74-296)	.92	7.08	.88	7.42	.87	5.83

[a]Based on n=16 classes.

[b]Numbers in parentheses identify the ranges of possible scores.

TABLE 4

Intercorrelations among Checklist Section Scores,

16 Classes, Spring 1969

	Q_1[1]	M_n	Q_3
A x B[2]	43	65	72
A x C	19	28	52
A x D	40	58	68
A x E	43	52	62
A x F	36	43	54
B x C	28	42	58
B x D	56	63	73
B x E	54	62	74
B x F	34	56	75
C x D	22	42	52
C x E	37	48	64
C x F	11	30	45
D x E	46	65	71
D x F	31	44	52
E x F	41	49	58

1. Decimals have been omitted

2. A. Instructional Objectives (n_i = 11)

   B. Human Relations (n_i = 18)

   C. Use of Materials and Resources (n_i = 11)

   D. Pupil Motivation (n_i = 10)

   E. Continuity of Learning (n_i = 16)

   F. Measurement and Evaluation (n_i = 8)

TABLE 5

CLASSIFICATION OF ITEMS BY FACTORS USING A FACTOR LOADING $\geq$ .30 AS THE CLASSIFICATION CRITERION

n = 449

Factor 1:		Factor 5:		Factor 12		Factor 18		Factor 25	
4	.41	43	.51	6	-.39	11	.30	13	.53
9	.36	47	.67	49	.35	65	.80	14	.72
15	.34	54	.48	53	.67	Factor 19		59	.31
18	.38	56	.38	59	.38	48	.73	64	.38
44	.35	73	.36	Factor 13		Factor 20		72	.36
55	.32	Factor 6:		25	.60	1	.79		
56	.38	29	.34	26	.78	Factor 21		Factor 26	
62	.38	33	.49	Factor 14		16	.51	27	.82
63	.60	35	-.67	7	.43	62	.42		
66	.49	Factor 7		12	.70	71	.45		
67	.62	28	.74	38	.41	Factor 22			
68	.55	72	-.36	51.	47	33	.31		
69	.66	Factor 8		Factor 15		37	.59		
70	.69	3	.55	2	.79	52	.63		
73	.49	5	.77	6	.40	57	.32		
Factor 2:		Factor 9		Factor 16		Factor 23			
40	.61	30	.78	7	-.31	4	.38		
41	.71	36	.35	20	.36	9	.46		
44	.31	Factor 10		22	.65	16	.32		
Factor 3:		58	.72	45	.38	17	.55		
8	.43	60	.35	59	.31	21	.66		
19	.74	61.	51	Factor 17		24	.37		
Factor 4:		Factor 11		34.	67	Factor 24			
4	-.30	11	.30	50	.31	10	.73		
32	.44	42	.67	51	.35				
36	.30	46	.54						
38	.37	60	.41						
39	.72								

NOTES: 1. Numbers without decimals are the check-list item numbers; those with decimals are the factor loading.
2. Every factor showing a single item only had 3-5 other items loading $\geq$ .20 but $<$ .30

TABLE 6

CROSS - CLASSIFICATION OF ITEMS BY A PRIORI DIMENSIONS AND BY EMPIRICALLY DERIVED FACTORS

	A PRIORI DIMENSIONS'					
	A	B	C	D	E	F
Factor No:	Instrct. Object.	Human Relations	Use of Instr Mat's	Pupil Motiv.	Continuity of Learning	Mers & Eval.
1	68	15, 18		9, 44	4,55,56 66,67,69,70 73	62, 63
2			40, 41	44		
3		8, 19				
4			32, 36, 38, 39		4	
5				43, 47	54, 56, 73	
6		29	33, 35			
7		28			72	
8	3,5					
9			36	30		
10						58, 60, 61
11	11			42, 46		
12	6	49			53	59
13		25, 26				
14	12	7	38		51	
15	6			2		
16		7. 20, 22		45		59
17	50		34		51	
18	11				65	
19				48		
20						1
21		16			71	62
22			33, 37		52	57
23		16, 17, 21 24		9	4	
24	10					
25	13, 14				72	59, 64
26		27				

1. The numbers in the table are check-list item numbers; e.g. 68 identifies check-list item number 68

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